

pragma's

TOP PRODUCT

TOP Profiles

Issue #49

The *free* newspaper for Pick™ users.

May 1989

Does Your Mailing Label Say RENEW?

If your mailing label says RENEW, your subscription is about to expire! To avoid missing your next free issue of *Product Profiles*, renew IMMEDIATELY by filling out and returning the front cover coupon for a free subscription! The last two digits of your mailing label indicate the number of the last issue you'll receive.

Pragma's Product Profiles
is published periodically by
Semaphore Corporation,
207 Granada Drive, Aptos, CA 95003,
(408) 688-9200.

Entire contents copyright © 1989 by
Semaphore Corporation.
All rights reserved. No part of this
publication may be reproduced in any
form or by any means without prior
written permission from Semaphore.
Semaphore offers no warranty, either
express or implied, for any losses due to
the use of any material published.

Subscriptions are free, but are available
only to Pick users with USA mailing
addresses. Semaphore cannot be
responsible for lost issues or issues
returned to us because of address
changes.

All material received will be considered
for publication. Semaphore reserves the
right to edit all submittals.

Pick is a trademark of Pick Systems.
Semaphore Corp. is not affiliated with
Pick Systems.

Pragma's Product Profiles is completely FREE!

Name _____

Company _____

Address _____

City/State _____ ZIP _____

Telephone _____

I use the Pick operating system and my mailing address is in the USA.
Please continue sending me *Pragma's Product Profiles* free of charge.

Signature _____ Date _____

[] I also use an Apple® Macintosh™ computer.

Return this form to:
Pragma • 207 Granada Drive • Aptos, CA 95003

Pragma's Product Profiles
207 Granada Drive
Aptos, CA 95003

Address Correction Requested

BULK RATE
U.S. POSTAGE
PAID
APTOS, CA 95003
Permit No. 67

FREE ADVERTISING

You can advertise your Pick product or service in *Pragma's Product Profiles*, absolutely free and without obligations of any kind. Free ads must be black and white. Ads will be accepted only in the following sizes: 2.75", 4.5", 6", or 10" wide by 2.75", 6", 9.25", or 12.5" high. Ads must be single-piece, unmounted, high quality camera-ready positives, such as a photostat or velox. Do not send mechanicals, multi-piece pasteups, mounted artwork, negatives, or film. Halftones must be 85-line screens.

Send your ad to: Semaphore Corp., 207 Granada Drive, Aptos, CA 95003, (408) 688-9200. Materials will not be returned. Ads are run at Semaphore's discretion, on a space available basis. The smaller your ad is, the better are its chances of being published.

FREE MAGNETIC TAPES

A few cartons of standard 2400 foot 1/2" reels of magnetic tape are still available while supplies last, compliments of Semaphore Corp. For your FREE tapes, call (408) 688-9200, tell us your Federal Express account number to use for shipping charges, and we'll send you a carton of ten tapes by Standard Air using our packaging.

The most recent recipients of free cartons of tapes include: Multon N. Water • Lawrence Research Group • Northeast Data Systems • Cowley Computer • Cornnuts Inc. • Pacific Marine Fisheries • Oliver Products Co.

FREE BACK ISSUES

A few back issues of *Pragma's Product Profiles* are still available while supplies last:

- #37: Techies Talk Tape Transfers
- #39: A Pop-up Calculator
- #40: The Perfect Environment?
- #41: An F-conv Input Processor
- #42: Automating Shipping
- #43: Two Techies Talk Telecom
- #45: A Software Alarm Clock
- #46: The Alarm Clock Revisited
- #47: When Not To Use B-trees

To receive your FREE copies, indicate which issues you need and send a stamped, self-addressed envelope with \$2.40 postage to: Pragma, 207 Granada Drive, Aptos, CA 95003.

Does your mailing label say RENEW?

If so, your subscription is about to expire! To avoid missing your next free issue of *Pragma's Product Profiles*, renew NOW by filling out and returning the front cover coupon for a free subscription. The last two digits of your mailing label number indicate the number of the last issue you'll receive if you don't renew.

Can Your Pick System Telecommunicate?

Once upon a time, there was a company with a Pick computer. The company made money by doing accounting for other businesses. The company had a lot of customers and handled many financial transactions, and everything was stored in a large database on the company's Pick machine. Everyone at the company was very happy.

One day, the Vice President of Marketing decided that, instead of making customers wait for their printed transaction reports (which cost the company a lot of money to print and mail), it would be nice if customers could dial into the company's computer by modem using individual accounts and passwords, and get immediate information all by themselves. Maybe even perform actual transactions. Of course, the customers would be charged to use such a service. The company's Executive Board agreed it was a nice idea, and the VP of Management Information Systems explained it would only require some cheap modems and a little programming to offer such a service, so the Board told MIS to make it so. Everyone at the company looked forward to offering their customers this new service, and making even more money.

The company's programmers quickly developed the system, and customers were calling and logging on in no time. But soon there were problems. Customers would often hang up without using the logoff command, or the modems would even disconnect because of noisy phone lines. Then other customers would call in and find ports still logged on to other customers' accounts, and they could access other customers' data!

The programmers spent more time and money on special equipment and additional programming, and managed to make their Pick machine automatically logoff an account if a modem disconnected, but sometimes the caller would hang up in the middle of a transaction that updated multiple files, and data would end up being corrupted.

The programmers spent more time and money trying to solve the corruption problem, but they couldn't make much progress. In the mean time, the company was getting complaints from customers that they often couldn't call in, because all the lines were busy. The company found that many customers would dial in, make a few transactions, leave the line connected but idle for a long time (sometimes hours), then finally make a few more transactions and hang up. Huge quantities of time, modems, and ports were being tied up by relatively idle customers. Marketing wanted the programmers to make the computer automatically disconnect any account idle for more than ten minutes, but no one could figure out how to do it.

After many months of poor results and customer complaints, the company decided to stop the service. The Board felt it had been a good concept, but that their programmers just couldn't make it work.

Everyone at the company was still happy, but some employees were more happy than others.

The Pick system is not as conducive to telecommunications programming as, perhaps, a system like Unix, but now that many Pick releases include special port-control functions in BASIC, Pick sites can develop sophisticated modem capabilities with a lot less trouble than the fairy tale company just described.

As an example, the *ONLINE* program listed on the back page shows how a Pick machine can easily manage modems and the timing problems typical of telecommunications. *ONLINE* implements a kind of "bulletin board" that multiple users can simultaneously dial into to reach a menu of commands. Although the current menu has only two choices (quit and change password), *ONLINE* is not a

toy system. A larger version of *ONLINE* has been in use as a successful commercial service for almost a year. (To try a fancier version of *ONLINE*, dial 408-662-2717 with a modem at 300, 1200, or 2400 baud, with 8 data bits, 1 stop bit, no parity, and log in to the DEMO account.)

Rudimentary telecommunications applications can be programmed in Pick using just *PRINT* and *INPUT* statements, but complete compatibility with commonly available Hayes-type modems requires the ability to change a port's baud rate from within a program. The ability to control handshake protocols and detect characters waiting for input are also necessary software functions if correct handling of idle, stalled, or timed-out ports is desired. And the ability to input all bytes, without the preprocessing of control characters, is also nice. This version of *ONLINE* was implemented on a Zebra, so *PROTOCOL()* and *SYSTEM()* statements and functions are used for complete input/output control.

All necessary manipulation of Hayes-type modems can be accomplished by sending and receiving simple modem command strings. The one mistake most programmers make is to leave the modem in "auto answer" mode. That means the modem answers calls whenever it can, and the host has to be ready to accept a call at arbitrary moments. That presents difficult security problems, since one caller might hang up without formally logging off, and another call can come in before the host even notices.

A better approach (used by *ONLINE*) is to disable auto answer and let the modem announce with a *RING* message that a call is coming in. The host can use timeouts to detect that a prior caller has disappeared, and then answer any new call via a modem *ATA* command whenever the host is ready.

The *ONLINE* program uses two files: *OL.ACCTS* contains the accounts that can log on, and *OL.MSGS* contains messages generated by *ONLINE* to keep track of its activity. Each valid account has a record in *OL.ACCTS* with its password stored as hex ASCII in attribute one. For example, if account *MIKE* has password *DOG*, then *OL.ACCTS* has an item named *MIKE* and *MIKE<1>* equals the string "444F47".

ONLINE expects to be invoked by a logon proc. For example, if the account *TEST* has the proc

```
PQ
HRUN BP ONLINE
P
```

under the name *TEST* in its Master Dictionary, then the command *LOGON 2, TEST* will start *ONLINE* running on port 2, assumed to have a modem.

ONLINE begins by performing various initializations. Note that X-ON/X-OFF handshaking is disabled in line 23. One of the goals of *ONLINE* is to automatically logoff accounts if no meaningful work is occurring. If

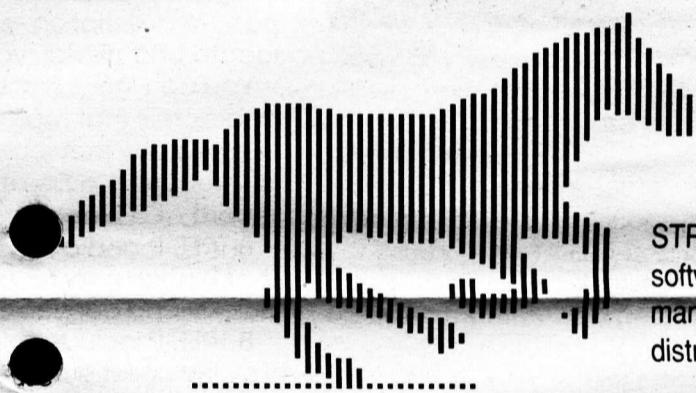
Semaphore Corporation welcomes its newest B-TREE-P customers:

- Bottom Line Software Inc.
- Bear River Mutual Insurance
- Performance Warehouse
- Mill-Power Supply Co.
- Welfare & Pension Administration
- Tacoma Housing Authority
- City of San Pablo
- Wright Group
- Elsevier Science Publishing
- Tau Computer
- Hospital Specialty Co.

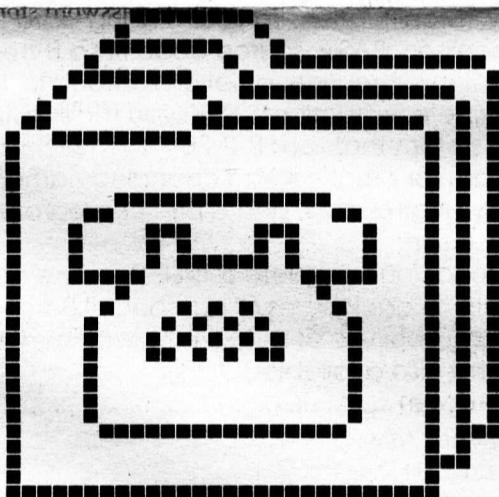
Products and services from Semaphore Corporation



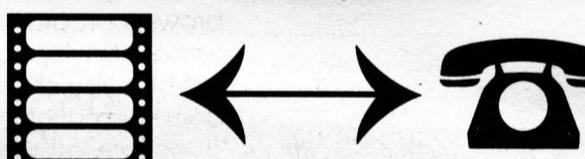
B-TREE-P
indexing tools
for Pick systems



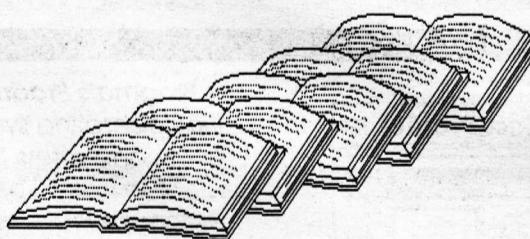
STRIDE, integrated
software for
manufacturing and
distribution



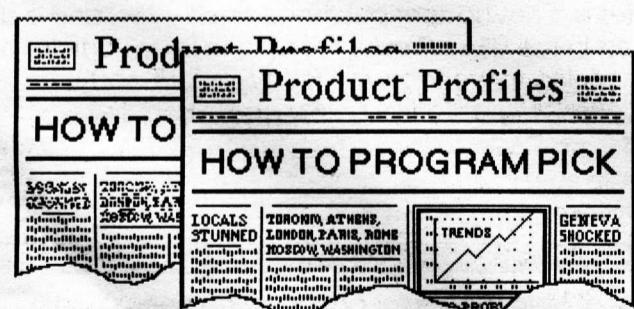
Telefolders
icon-based bulletin
boards for Macintosh
and Pick host
computers



Find-a-User,
an online directory of
Macintosh users
in the USA



Pragma, the original
technical journal for
Pick users



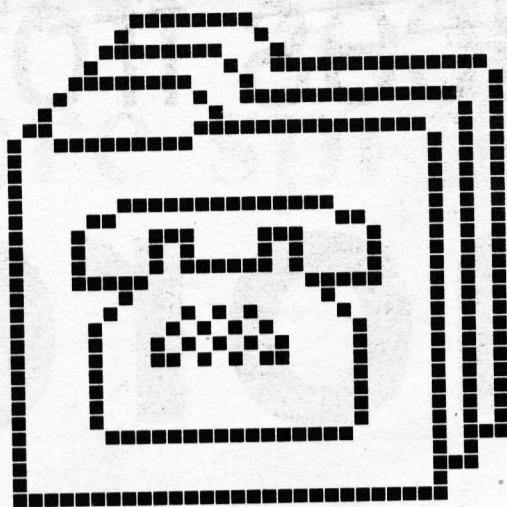
Pragma's
Product Profiles,
the free newpaper
for Pick users



Mailing list of
Macintosh users
in the USA, on labels,
tapes, or disks

```
CCCCCCCCCCCC 0000000000 MHHH 1111111111 CCCCCCCCCC SSSSSSSSSS
CCCCCCCCCCCC 000000000000 MHHH 111111111111 CCCCCCCCCC SSSSSSSSSS
CCCC  CCCC 0000 0000 MHHHHH 111111111111 CCCC  CCCC SSSS  SSSS
CCCC  0000 0000 MHHHHH 111111111111 CCCC  SSSS
CCCC  0000 0000 MHHHHH 111111111111 CCCC  SSSS
CCCC  0000 0000 MHHH 111111111111 CCCCCCCCCC SSSSSSSSSS
CCCCCCCCCCCC 000000000000 MHHH 111111111111 CCCCCCCCCC SSSSSSSSSS
```

Computerized inmate
cash and commissary
control system for jails



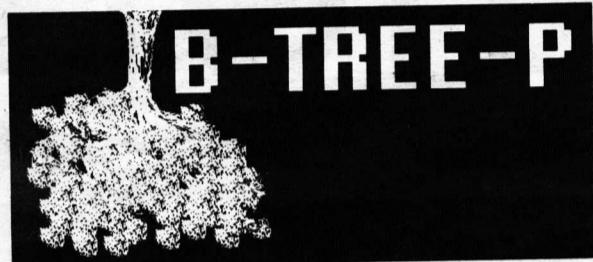
Telefolders is software that turns your Macintosh or Pick computer into an iconic bulletin board host system. Any Macintosh can dial in or directly connect to your Mac or Pick host, and upload and download Mac files. You can control what files callers have access to.

Unlike text-based bulletin boards, callers see Telefolders host files displayed as standard icons, folders, and windows. There are no text menus to read or text commands to type. To exchange any Mac program, data, or document with the host, the caller just clicks on the desired file icon and selects "Send" or "Receive" from the Mac's pull-down menu.

Telefolders turns a Macintosh host into a single-user iconic bulletin board. On a Pick host, Telefolders supports any number of simultaneous callers sharing the same iconic database, plus Telefolders allows password-protected accounts with cash balances and transaction histories, folder locking, private folders, "phantom" icons, automatic error retry, and an automatic recent acquisitions folder.

Only Macs can connect to a Telefolders Macintosh host or to a Telefolders Pick host. Your copy of the Telefolders host is restricted for use on one computer at a time.

Telefolders for Mac hosts \$49
Telefolders for Pick hosts (includes source code) \$995



B-TREE-P is proven software for using B-trees on your Pick computer. B-trees allow any of the data in any of your files to be instantly located and displayed in any sort order, without having to wait for SORT or SELECT commands.

Tired of waiting for your computer to SORT or SELECT your large data files? Need to quickly find any attribute? Want to scroll files up or down, in any sort order? With B-TREE-P you can instantly search, sort, and scroll any data from any file.

Now you can instantly look up customers by name, street, ZIP code, or any other field — not just by customer number. Now you can immediately find inventory entries by quantity, cost, or description — not just by part number. Whatever files you use, now you can instantly locate and display your data any way you want, without having to wait for endless SELECTs.

You can immediately display any record in any file just by typing one or more starting characters that match any field in the record. You can display not only a selected record, but also any previous and next records, using any sort order you specify. You can jump to any record in a file at any time, then browse through the file by scrolling up or down, a record at a time, a page at a time, in any sort order.

B-TREE-P and a few optional/minor changes to your existing data entry program are all that is necessary for you to immediately be able to search, browse, or output your data quickly and conveniently. Modifications to your existing data files are totally unnecessary.

B-TREE-P includes all necessary BASIC source code for a B-tree system that works with any file. Included are insertion subroutine, deletion subroutine, lookup subroutine, previous/next subroutine, and complete instructions. Plus, you receive the source code for a complete demonstration system that uses B-TREE-P to maintain a name and address file, including an editor program for creating and changing name and address records, a browser program for displaying records, and a printer program for listing file items in order without having to wait for a sort.

When you order, we'll send you complete B-TREE-P source code and all necessary documentation, along with all back issues of our special B-tree newsletter. B-TREE-P includes a license agreement limiting your use of B-TREE-P to one computer at a time. Multi-CPU and OEM resale agreements are also available.

B-TREE-P (includes source code) \$395



Pragma's Product Profiles is a newspaper published since 1984, and is distributed free to Pick operating system users in the USA. Product Profiles features articles of interest to Pick users, and offers free advertising for vendors of Pick hardware, software, and services. Back issues can be obtained by sending a stamped, self-addressed envelope.

Pragma's Product Profiles **free upon request**



Semaphore's **mailing list of Mac users** is for anyone who needs names and addresses of Macintosh users in the USA. Need labels, diskettes, or magnetic tape? Choose and rent any quantity from our list of hundreds of thousands of Mac users, with no charge for selecting, sorting, media, or delivery. All lists are supplied in ZIP code order, on one-across adhesive labels, Macintosh diskettes, or 1600 BPI tape. Mac disks use text-only files, with tab field delimiters and carriage return record separators, suitable for importing to most database packages. A free Hypercard import stack is included. Mag tape orders require 10,000 names minimum. Ask for our one-time rental agreement.

Macintosh user mailing list, per name **5¢**



STRIDE is an integrated package of manufacturing and distribution software for General Automation Zebra computers using the Pick operating system.

STRIDE includes 18 modules to automate every aspect of a manufacturing or distribution company: accounts payable, accounts receivable, cost accounting, customer service, engineering, fixed assets, general ledger, inspection, order entry, payroll, personnel, production control, programming, purchasing, receiving, shipping, shop floor, and stock room. The production control module includes regenerative Materials Requirement Planning.

STRIDE consists of approximately 200 programs, 350 procs, 80 formatted screens, 655K bytes of online user documentation, and 225K bytes of online programmer cross reference documentation. The approximately 100 files in STRIDE require 2.5 million bytes of disk space for installation. STRIDE uses no assembler code.

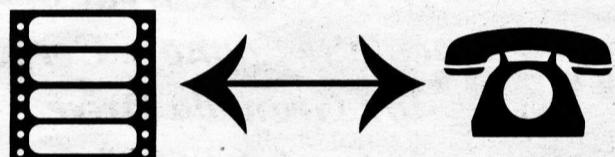
STRIDE has a clean, modular, well-structured, and conceptually integrated design. STRIDE simultaneously and correctly updates multiple files as soon as transactions are entered, in order to provide a database that is always up to date, and to avoid unfriendly batch-style processing.

STRIDE is well-documented, especially for the programmer. Extensive cross-references carefully document all program, proc, and data interdependencies, so that modifications are easy and predictable.

STRIDE includes a license agreement and Semaphore's B-TREE-P package. OEM licenses are also available.

STRIDE, source code and documentation \$9,900

STRIDE, when purchased with a Zebra no charge

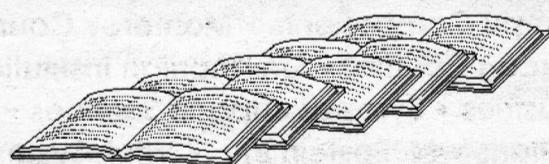


Find-a-User is an on-line service that lets you locate Macintosh users in the USA. You can look up individual users by name, company, or address, and get a complete mailing address and phone number for one-time use. You can copy any size range of names, companies, or addresses into your computer and prepare your own mailing. Need all Macintosh users at business addresses in Fargo, North Dakota? There are no minimum use requirements, so Find-a-User is ideal for getting small lists any time you need them.

You can access Find-a-User with a modem and any computer or terminal. It's menu driven and very easy to use. You are only charged for the quantity of name or address items retrieved during each call placed at 300, 1200, or 2400 baud. Find-a-User accepts calls 24 hours a day. There are no registration or subscription charges, no connect or access charges, no renewal charges, no minimum charges, no monthly charges, or any other charges of any kind.

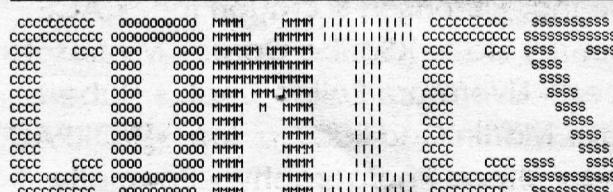
Ask for our one-time call agreement. Addresses may be used for one-time mailings only. Phone numbers may be used for one-time follow-up calls only. Dial (408) 662-2717 with a modem and logon to the DEMO account to try looking up actual Find-a-User names, absolutely free of charge.

Find-a-User access, per name 4¢



Pragma (not to be confused with Pragma's Product Profiles) is the original 48-page technical journal for Pick users published quarterly beginning in August 1982. Each issue is packed with software and helpful information, including interviews, complete and debugged program listings, and detailed, explanatory articles for readers at all levels of experience. All seven back issues are available. Issue #1 is a reprint.

Pragma, per back issue \$25



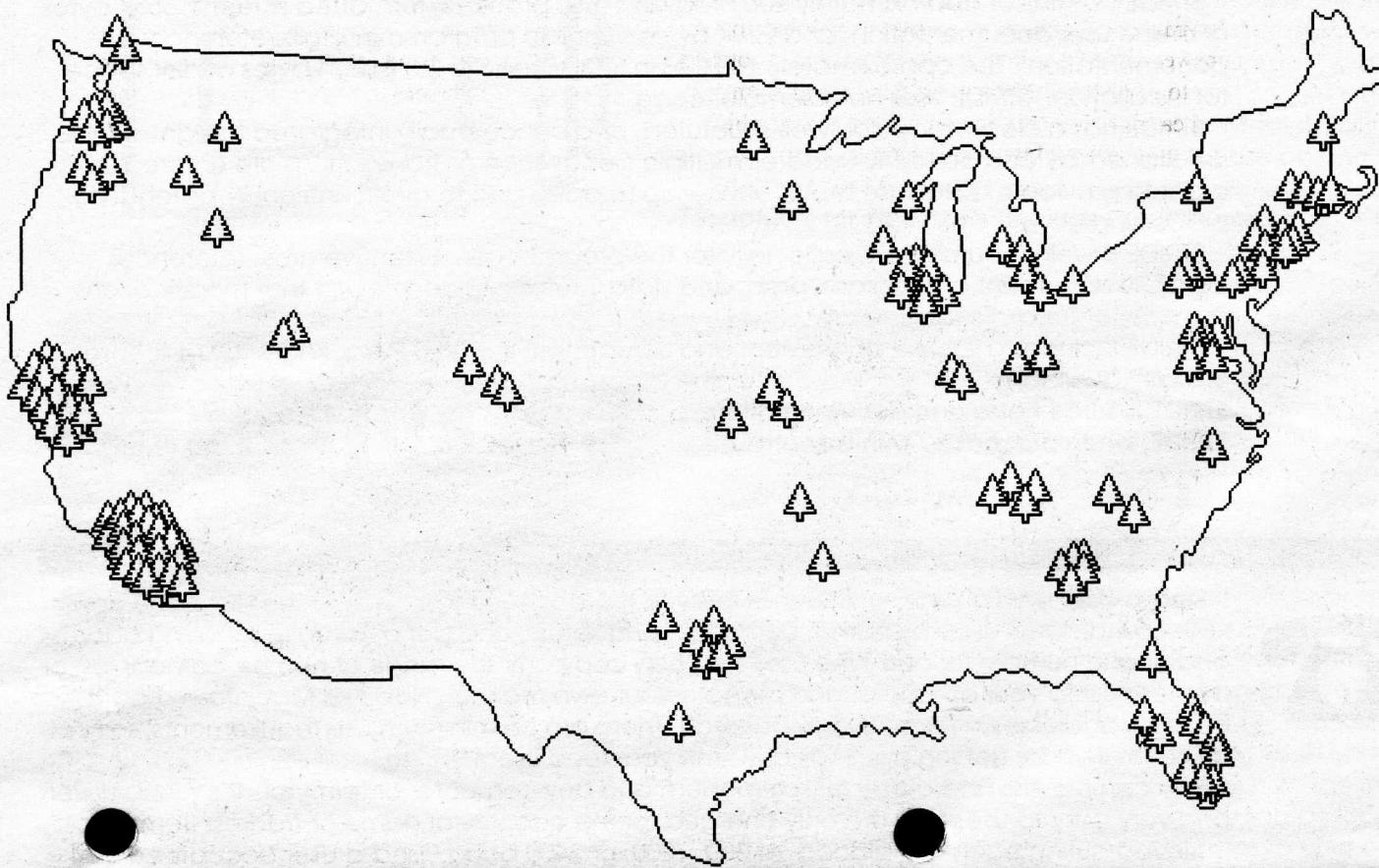
COMICS is a complete computerized inmate cash and commissary system for jails. COMICS stores all necessary inmate cash and commissary records and then lets jail personnel instantly display, change, or print those records via any number of high-speed display terminals and printers.

A typical COMICS installation includes terminals in the stores area for use by commissary personnel, and terminals at cash receiving and disbursement points, such as booking areas. COMICS automatically records all information about every transaction, and computes totals, balances, taxes, and all other necessary calculations. COMICS insures instant posting of all inmate cash transactions and commissary sales. COMICS allows accurate cash control and fast commissary order processing with a minimum of effort, while completely avoiding all paperwork and manual arithmetic.

COMICS allows a jail to provide better cash control and commissary service with less effort and cost, and pays for itself in no time.

Complete COMICS hardware and software from \$14,300

New B-TREE-P installations are sprouting up every day!



B-TREE-P is software that allows your data to be instantly located and output, without having to wait for lengthy file sorts or searches. Join the growing number of sites discovering the power and flexibility of **B-TREE-P**. Write or call **Semaphore Corp.**, **207 Granada Drive, Aptos, CA 95003**, (408) 688-9200.

Ukrops Super Markets Inc. • Vanguard Physician Services Corp. • Sabus Group • Gastech Inc. • Healthlink Inc. • Chesapeake Computer Works • Weldco-Beales • Glenayre Electronics • Educorp • Denticare Inc. • Dealer Software Inc. • Aluminum Forge Co. • Business Sciences Inc. • Westonwood Baptist Church • Benefit Systems Inc. • Herald Publications • George R. Smith • William Bloom & Son Inc. • Dana Corp. • Wayne Schachtel Consulting • Sysgen Inc. • Bellingham Cold Storage Co. • Concept Systems Inc. • Brigham Young University • Kilo MicroAir • Diversified Computer Systems • Chick-Fil-A • Industrial Indemnity • Columbia County • PEC Vectron • Advanced Technology Labs. • Arrowhead Water Co. • Mathis & Assoc. Inc. • Tricor America Inc. • Systems House Inc. • Vancouver Sanitary Service • Bottom Line Software Inc. • Brown & Caldwell Labs • Colonial Pacific Leasing • Marion County Republicans • Augmented Computer Technology • Premisys • Kripalu Center • Rollings Homes Inc. • Computerized Data • Ultimate Corp. • Elliott-Pope School • Toyota of Irving • Victory Express Inc. • Compu Components • Monterey County • Butterfields • Electronic Business • Kreepy Krauly USA • Tennessee Mat Co. • Zircon Co. Inc. • Smithsonian Institution • Call U.S. Inc. • Meditech • Unison Technologies Inc. • Wavetek • Moore Industries • Systems Support Services • Aerojet General • Target Supply • Lilyblad Petroleum • Partners National Health Plans • M. Epstein Inc. • Vitek Systems Inc. • J & L Industrial Supply Co. Inc. • Century Publishing Co. • Northwest Agricultural Coop Assoc. • Tampa Bay Mgmt. Services Inc. • Spectradyne Inc. • Crosstern Corp. • Magic Chef Air Conditioning Co. • Educators Mutual Insurance • Samuelson Assoc. Co. • Anthony Pools • Brooks Equipment Co. Inc. • Associated Students UCLA • Laub Group Inc. • United Collection Bureau Inc. • Pactel Paging • Access Software Inc. • Bronson & Bratton Inc. • ACS Systems Inc. • Topsy's International Inc. • Opportunities Unlimited • Glastron-Conroy Ltd. • Xscribe Corp. • Minnesota Trade Office • Berelson Co. • San Mateo County • Creative Computer Services • Livermore Police Dept. • Hubert Distributing Co. • Reinsurance Assoc. • Oman Publishing • Capital Software Ltd. • Martin Cadillac Co. Inc. • NORPAC • AIPAC • Medical Accounting Systems • Sierra Software Inc. • May Trucking • Shoob Photography • Specialty Underwriters Inc. • Specs Music • ADDS Inc. • Excalibur Computer Systems Inc. • City of Irvine • Cornell University • Office Works • Assertive Systems • Conston Inc. • Wofford College • Chicago Kenworth • Eye Care & Surgery Center • Chandler Lumber Co. • Mark Card • Penn Independent Assoc. Inc. • Condominium Insurance • John Klein & Assoc. Inc. • Cooke Data Systems Inc. • Infocel • Multisystems Inc. • Generation Research • Miami Trading Enterprises • System Works Inc. • Flynt Systems Corp. • Life & Health Insurance Co. of America • Information Technology Consultants • Tel-A-Train Inc. • Data Operating Systems Inc. • Computyme • Stewart Co. • Trudell Trailer Sales Inc. • NCAR • Jet Electronics & Technology Inc. • Distributed Logic Corp. • University of California • Casualty Underwriters Inc. • Halprin Supply Co. • Long Beach Community Services.

X-ON/X-OFF is enabled, and a caller hits a control-S, the caller can make the host hang indefinitely and avoid all timeout checks.

ONLINE executes an infinite LOOP in lines 29 to 41, waiting for the modem to announce a RING. All input, either from the modem or through the modem from the caller, is handled by the getline routine at line 96. To call getline, first set TIME.LIMIT to the number of seconds you're willing to wait, set ECHOING to true or false to echo input or not, and set MODEMING true or false if we're receiving text from the modem or through the modem from the caller. The getline routine accepts characters until a carriage return or until time is up, whichever occurs first, and returns any input in the LINE variable. RANOUT is set true if time ran out, else false.

Note that getline handles backspaces, ignores received linefeeds (expected from callers with auto-linefeed software) and echoes a linefeed at end of input (except to modems), will not be fooled by continuous runaway input (such as garbage from noisy phone lines), correctly calculates timeouts even when crossing midnight, and warns (callers but not modems) when time is running low. If MODEMING and ECHOING are false,

password input is assumed, and characters are echoed as asterisks, converted to hex, and not forced to upper case. Since ONLINE spends most of its time in getline, one quantum release (more may be suitable) is performed in line 114. The SYSTEM(14) function in line 102 returns the number of input characters waiting, and the PROTOCOL(19) function in line 103 returns the next uninterpreted input byte.

Once a RING message is detected, the do.ing routine at line 43 tells the modem to answer the call. It then sets the baud rate according to the CONNECT message from the modem and calls the do.logon routine at line 71, which gives the caller a few chances at identifying an account and password. The validate.logon routine at line 183 checks the password and outputs a welcome message.

A successful logon leads to the accept.commands routine at line 145, which repeatedly displays the menu and accepts and processes user input. This routine stays in control until a caller quits, or hangs up and times out, or hangs up and another call RINGS in, or until enough garbage is input. Note how the NOISE and PRIOR.NOISE variables track garbage commands, but resets after a good command.

The accept.commands routine immediately recognizes unexpected modem RINGS in line 154 as outright commands, which means RING is a synonym for menu option 1. If desired, the RING test can be deleted from that line and be caught by default at line 156 as more NOISE. In that case, the modem will simply keep sending RINGS until accept.commands exits because of excessive NOISE and returns all the way to do.ing to again answer the phone.

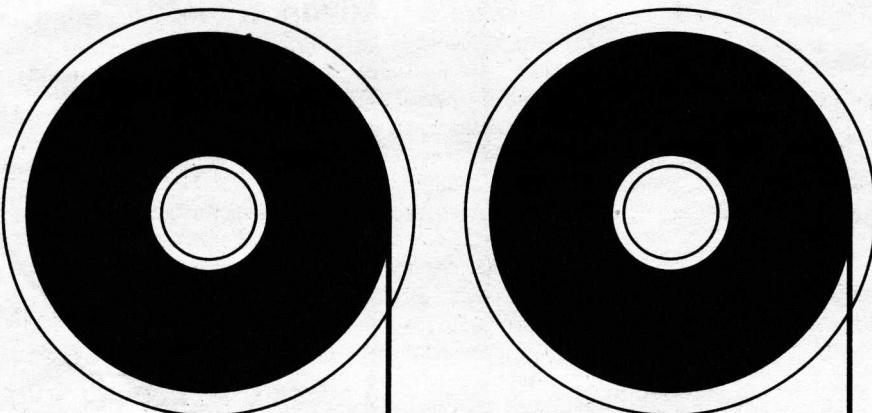
The modem tuneup routine at line 197 uses a S4=13 command is used to force all modem messages to be of the form "return, return, message, return, return" and thereby avoids tricky linefeed parsing. The hangup routine at line 237 does similar modem handshaking.

The password routine at line 217 is invoked by the user via the menu. While passwords are forced to at least 6 characters for security, the hex form requires a double length test in line 228.

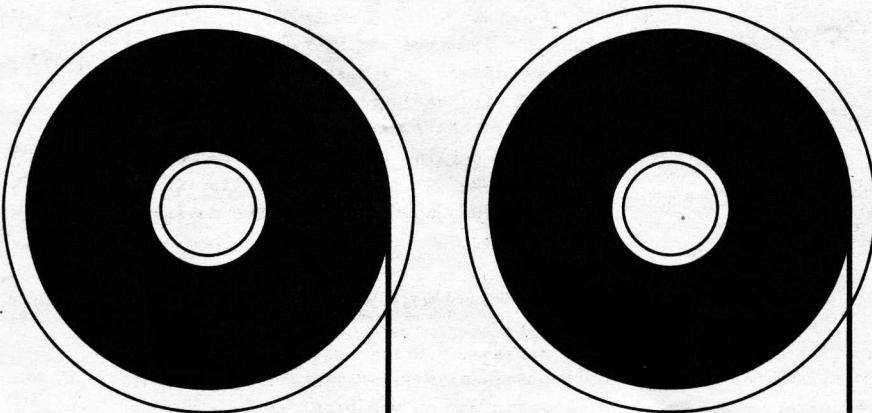
Finally, the message routine at line 249 is often called to record ONLINE's status, using the SYSTEM(12) millisecond timer. Use port numbers and/or an incrementing id number if your system manages to output messages at bursts of more than a thousand per second. Sending messages to a printer queue might be preferable.

Does your mailing label say RENEW?

12399/40 RENEW
SOPHISTICATED MAILERS CORP
720 W DOWNRIVER AVE #53
SAN ANTONIO TX 77349-2234

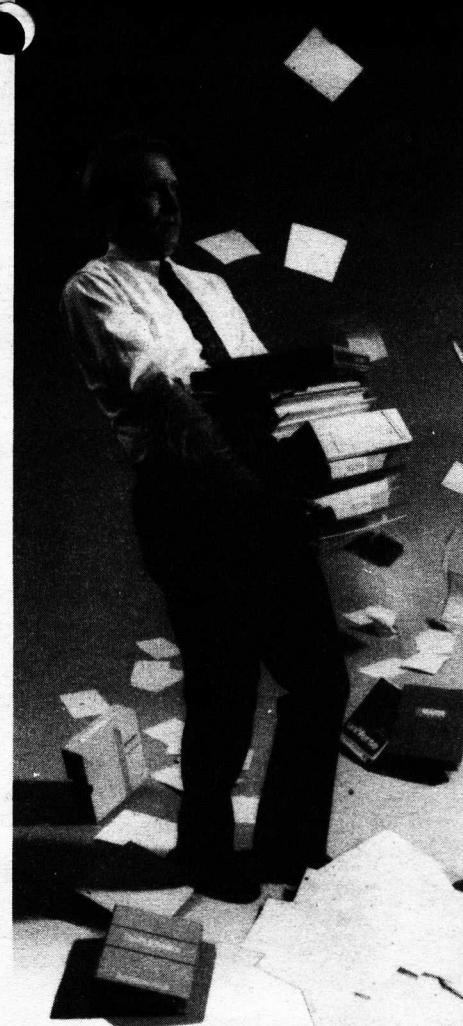


FREE Magnetic Tapes! See page 2.



Are You Still Doing It By The Book?

DROP YOUR BOOKS! NOW YOU CAN GET UP TO SPEED ON PICK, JET OR COMPUSHEET + AT HOME, IN THE OFFICE OR ANYWHERE YOU'VE GOT A PICK MACHINE AND A CRT TERMINAL.



For years we Pick people have struggled to learn the only way we could, by reading the reference manuals. What a lousy way to learn! Learning a new computer system reading the reference manuals is like English by reading Webster's Dictionary.

Introducing Crescendo's Electronic Tutorials. When you learn by using an electronic tutorial, every terminal is a classroom. And you are learning the way thousands of Pick people have now learned. Each electronic tutorial leads you through simulated, hands-on work sessions in which you actively participate. You try every important command and carefully review the way the system responds to each. It all happens right on the terminal. There is no book to hold in your lap.

These Crescendo Electronic Tutorials bring you into the world of Pick...

■ The PROF Electronic Tutorial for Pick Learn TCL, EDITOR, ACCESS, PROC even Pick Basic! Only \$395*

■ The JET Word Processor Electronic Tutorial Also available for UltiWord, DocuMentor, and WordMate. Only \$295*

■ The CompuSheet + Electronic Tutorial Many examples and exercises. Only \$295*

All these tutorials are available for Pick on the XT/AT/386 as well as the Pick-compatible minicomputers. PROF is also available for Prime INFORMATION and VMARK uniVerse.

Get a Free Demo Diskette!

Crescendo Associates wants to rush YOU a demonstration of these exciting products absolutely free! The Crescendo Product Presentation Diskette works on any MS-DOS personal computer. You don't even need PICK to run the demonstration.

Just call 1-800-373-1224!!!

So we can rush you your demo diskette and product literature!!!

CRESCENDO Associates, Inc.
24350 Joy Rd. • Suite 9 • Redford, Michigan 48239
Phone: (313)-537-1919 FAX: (313)-537-7554

*These prices apply to the XT/AT versions. Pick is a trademark of Pick Systems, Irvine, CA. CompuSheet + is a trademark of Interactive Systems, Colorado Springs, CO. JET is a trademark of JET Software, Tustin, CA. WordMate is a trademark of McDonnell Douglas Computer Systems, Irvine, CA. DocuMentor is a trademark of ADDS, Hauppauge, NY. UltiWord is a trademark of Ultimate Corp., East Hanover, NJ. Prime INFORMATION is a trademark of Prime Computer, Natick, MA. uniVerse is a trademark of VMark Software, Natick, MA.

```

ONLINE
001 EQU AMCPASSWORD TO 1 ;* Password attribute
002 EQU true TO 1, false TO 0
003 EQU sec.per.day TO 86400 ;* Seconds per day
004 EQU short.timeout TO 2 ;* For modem commands
005 EQU medium.timeout TO 60 ;* For logons
006 EQU long.timeout TO 300 ;* For humans
007 EQU bell TO CHAR(7)
008 EQU bs TO CHAR(8) ;* Backspace
009 EQU lf TO CHAR(10) ;* Linefeed
010 EQU return TO CHAR(13) ;* carriage return
011 EQU bad.logon TO "Bad account and/or password!"
012 EQU escape TO 28 ;* For modem control
013 *
014 OPEN "OL.ACCTS" TO ACCT.FILE ELSE STOP ;* accts
015 OPEN "OL.MSGS" TO MSG.FILE ELSE STOP ;* messages
016 *
017 USER.ON=false ;* True once a user logs on
018 CURR.ACCT="" ;* Will be name of logged on account
019 BREAK OFF ;* To avoid debugger
020 ECHO OFF ; ECHOING=false ;* No input echo for now
021 MODEMING=true ;* We want to talk to a modem
022 PROTOCOL(2,2400) ;* Start out at 2400 baud
023 PROTOCOL(8,0) ;* Disable xon/off to avoid hangs
024 GOSUB modem ;* See if modem is there
025 MSG="Waiting for logon"
026 GOSUB message ;* Report in
027 * Wait for RING
028 * with MODEMING, long.timeout, no ECHOING
029 LOOP
030 GOSUB getline ;* Get modem message
031 IF NOT(RANOUT) THEN ;* Got something
032 BEGIN CASE
033 CASE LINE="" ;* Comes twice before RING
034 CASE LINE="RING" ;* Phone is ringing
035 GOSUB do.ring ;* Answer it
036 CASE true ;* Report and ignore all else
037 MSG="Not RING: ":LINE ; GOSUB message
038 GOSUB modem ;* In case modem is confused
039 END CASE
040 END ELSE GOSUB modem ;* Modem may be confused
041 WHILE true DO REPEAT ;* Never ends
042 loop.
043 do.ring: * Handle RING, ignore timeouts
044 GOSUB getline ;* Get return after RING
045 nduc "ATA":return: ;* Tell modem to answer phone
046 * Expect return, return, CONNECT, return
047 TIME.LIMIT=medium.timeout ;* Can take awhile
048 GOSUB getline ;* Should be return
049 TIME.LIMIT=short.timeout ;* Rest should be quick
050 GOSUB getline ;* Should be another return
051 GOSUB getline ;* Should be CONNECT
052 IF LINE[1,7]!="CONNECT" THEN ;* Got CONNECT
053 BEGIN CASE ;* Check type of connect
054 CASE LINE="CONNECT 2400" ; BAUD.RATE=2400
055 CASE LINE="CONNECT 1200" ; BAUD.RATE=1200
056 CASE true ; BAUD.RATE=300
057 END CASE
058 GOSUB getline ;* Final return
059 PROTOCOL(2,BAUD.RATE) ;* Adjust baud rate
060 TIME.LIMIT=medium.timeout ;* Now talking to user
061 MODEMING=false ; ECHOING=true
062 GOSUB do.logon ;* Doesn't return until hangup
063 MODEMING=true ; ECHOING=false
064 TIME.LIMIT=long.timeout
065 END ELSE
066 MSG="Not CONNECT: ":LINE ; GOSUB message
067 GOSUB modem ;* Straighten out modem
068 END
069 RETURN
070 *
071 do.logon: * Let user sign in
072 TRIES=0
073 LOOP
074 CRT ; CRT "Your account name?":
075 GOSUB getline ; TRIES=TRIES+1
076 ACCT=TRIM(LINE)
077 IF NOT(RANOUT) AND (ACCT # "") THEN
078 * Got something
079 CRT "Password?": ; ECHOING=false
080 GOSUB getline ; ECHOING=true
081 IF NOT(RANOUT) THEN ;* Got more
082 PASSWORD=LINE
083 CRT ;* Since password return isn't echoed
084 GOSUB validate.logon ;* Check input
085 IF USER.ON THEN ;* They checked out

086 TIME.LIMIT=long.timeout ;* For slow humans
087 GOSUB accept.commands ;* Until user is off
088 RETURN
089 END
090 END
091 END
092 WHILE TRIES < 5 DO REPEAT
093 GOSUB hangup
094 RETURN
095 *
096 getline: * Wait awhile for return-delimited line
097 LINE="" ; LEN.LINE=0 ;* Start out with no input
098 RANOUT=false ;* Haven't timed out
099 WAIT.START=TIME() ;* Start clock ticking
100 WARN.LIMIT=INT(TIME.LIMIT/2) ; NOT.WARNED=true
101 LOOP
102 IF SYSTEM(14) > 0 THEN ;* Input is waiting
103 IN.CHAR=BROTOCOL(19) ;* Get next character
104 IF(IN.CHAR#lf)&((IN.CHAR#bs) | (LEN.LINE>0)) THEN
105 * Valid char
106 IF NOT(MODEMING) THEN ;* Talking to a human
107 IF ECHOING OR (IN.CHAR=return) OR
(IN.CHAR=bs) THEN CRT IN.CHAR: ELSE CRT "*":
108 END
109 * Force return on runaway strings
110 IF LEN.LINE > 200 THEN IN.CHAR=return
111 END ELSE IN.CHAR="" ;* Ignore initial lf/bs
112 END ELSE IN.CHAR="" ;* Repeat lf/bs can timeout
113 IF IN.CHAR="" THEN ;* Found no input of interest
114 IGNORE=SYSTEM(13) ;* Release quantum
115 * How long have we waited?
116 SECS.WAITED=TIME() - WAIT.START
117 IF SECS.WAITED < 0 THEN SECS.WAITED=TIME() +
(sec.per.day-WAIT.START)
118 RANOUT=(SECS.WAITED > TIME.LIMIT) ;* Time up?
119 IF SECS.WAITED > WARN.LIMIT THEN ;* Should warn
120 IF USER.ON & NOT.WARNED & NOT(MODEMING) THEN
121 CRT ; CRT bell:"Respond or die!"
122 NOT.WARNED=false ;* So warning won't repeat
123 END
124 END
125 END
126 UNTIL IN.CHAR=return OR RANOUT DO
127 IF IN.CHAR # "" THEN ;* We have another char
128 IF IN.CHAR # bs THEN ;* It's not a backspace
129 LINE=LINE:IN.CHAR ;* Append to line in progress
130 LEN.LINE=LEN.LINE+1 ;* Remember to bump length
131 END ELSE ;* It's a backspace
132 LEN.LINE=LEN.LINE-1 ;* Reduce string length
133 IF LEN.LINE < 0 THEN LEN.LINE=0
134 LINE=LINE[1,LEN.LINE] ;* Reduce string
135 END
136 END
137 REPEAT
138 IF NOT(MODEMING) THEN CRT lf: ;* Linefeed
139 IF ECHOING OR MODEMING THEN ;* Not password
140 CONV="MCU" ;* Upper case conversion
141 END ELSE CONV="MX" ;* Hex conversion
142 LINE=OCONV(LINE, CONV) ;* Force uppers or hex
143 RETURN
144 *
145 accept.commands: * Returns after user is off
146 QUITING=false ; NOISE=0 ; PRIOR.NOISE=0
147 LOOP
148 CRT
149 CRT "1 - Quit"
150 CRT "2 - Change password"
151 * List other choices here
152 CRT ; CRT "Your choice?": ; GOSUB getline
153 BEGIN CASE
154 CASE (LINE="1") OR (LINE="RING") ; QUITING=true
155 CASE LINE="2" ; GOSUB password ;* Change it
156 CASE NOT(RANOUT) ;* Must be garbage
157 NOISE=NOISE+1
158 CRT ; CRT bell:"Invalid choice!"
159 END CASE
160 TOO.NOISY = (NOISE >= 10)
161 UNTIL RANOUT OR QUITING OR TOO.NOISY DO
162 IF NOISE=PRIOR.NOISE THEN NOISE=0
163 PRIOR.NOISE=NOISE
164 REPEAT
165 IF QUITING THEN
166 CRT ; CRT bell:"Are you sure?": ; GOSUB getline
167 IF NOT(RANOUT) AND (LINE # "Y") AND
(LINE # "YES") THEN GOTO accept.commands
168 END
169 IF TOO.NOISY THEN CRT ; CRT bell:"Too noisy!"
170 CRT ; CRT "Goodbye!" ; GOSUB hangup
171 BEGIN CASE
172 CASE RANOUT ; WHY="timed out"
173 CASE QUITING
174 IF LINE="RING" THEN WHY="disconnected" ELSE
WHY="logged off"
175 END
176 *
177 CASE true ; WHY="garbled"
178 END CASE
179 MSG=CURR.ACCT:" ":WHY ; GOSUB message
180 USER.ON=false
181 RETURN
182 *
183 validate.logon: * Sets USER.ON true or false
184 MSG=ACCT:" trying to log on" ; GOSUB message
185 USER.ON=false ;* Maybe missed a logoff or hangup!
186 READ ACCT.REC FROM ACCT.FILE, ACCT ELSE
187 CRT bad.logon ; RETURN
188 END
189 IF ACCT.REC<AMC$PASSWORD> # PASSWORD THEN
190 CRT bad.logon ; RETURN
191 END
192 CRT ; CRT "Welcome!"
193 USER.ON=true ; CURR.ACCT=ACCT
194 MSG=CURR.ACCT:" logged on" ; GOSUB message
195 RETURN
196 *
197 modem: * Reassert modem connection
198 TIME.LIMIT=short.timeout ;* Modems are quick
199 TRIES=0
200 LOOP ;* Send commands to get modem response
201 CRT "ATS2=:escape:S4=13":return:
202 TRIES=TRIES+1
203 * Expect return, return, OK, return
204 GOSUB getline ; GOSUB getline ; GOSUB getline
205 GOT.OK=(LINE="OK") ; GOSUB getline
206 UNTIL GOT.OK OR (TRIES >= 3) DO
207 INPUTCLEAR
208 REPEAT
209 * From now on, wait longer for input
210 TIME.LIMIT=long.timeout
211 IF GOT.OK THEN MSG="Modem detected" ; GOSUB message
212 MSG="Modem not responding"
213 END
214 GOSUB message
215 RETURN
216 *
217 password: * Change it
218 CRT ; CRT "Old password?":
219 ECHOING=false ; GOSUB getline ; ECHOING=true
220 IF RANOUT OR (LINE="") THEN RETURN
221 OLD.PASSWORD=LINE ; CRT
222 CRT "New password of at least six characters?":
223 ECHOING=false ; GOSUB getline ; ECHOING=true
224 IF RANOUT THEN RETURN
225 NEW.PASSWORD=LINE ; CRT
226 pass.lock: *
227 READU ACCT.REC FROM ACCT.FILE, CURR.ACCT LOCKED
GOTO pass.lock ELSE ACCT.REC=""
228 IF (LEN(NEW.PASSWORD) < 12) OR
(ACCT.REC<AMC$PASSWORD> # OLD.PASSWORD) THEN
229 CRT bell:"Bad old and/or new passwords!"
230 RELEASE ACCT.FILE, CURR.ACCT ; RETURN
231 END
232 ACCT.REC<AMC$PASSWORD>=NEW.PASSWORD
233 WRITE ACCT.REC ON ACCT.FILE, CURR.ACCT
234 CRT "Password changed!"
235 RETURN
236 *
237 hangup: * Hangup modem
238 MODEMING=true ; TIME.LIMIT=short.timeout
239 ECHOING=false ; SLEEP 3
240 CRT STR(CHAR(escape),3): ; SLEEP 3
241 INPUTCLEAR ; CRT "ATH0":return:
242 GOSUB getline ; GOSUB getline ; GOSUB getline
243 IF LINE="OK" THEN GOSUB getline ELSE
244 MSG="Hangup failed" ; GOSUB message
245 INPUTCLEAR
246 END
247 RETURN
248 *
249 message: * Write message in file
250 MSG.ID=DATE():":TIME():":SYSTEM(12)
251 WRITE MSG ON MSG.FILE, MSG.I ; RETURN
252 END

```